

**Meeting:** 1003, Atlanta, Georgia, SS 23A, AMS Special Session on Representations of Lie Algebras, I

1003-22-1199      **Markus Hunziker\*** (Markus\_Hunziker@baylor.edu), Department of Mathematics, Baylor University, One Bear Place #97328, Waco, TX 76798-7328, and **Thomas Enright** (tenright@math.ucsd.edu), Department of Mathematics, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0112. *Bernstein-Gelfand-Gelfand resolutions of infinite dimensional highest weight representations*. Preliminary report.

Bernstein, Gelfand and Gelfand gave a resolution of any irreducible finite dimensional representation  $F$  of a complex semisimple Lie algebra  $\mathfrak{g}$  in terms of sums of representations induced from one-dimensional representations of a Borel subalgebra  $\mathfrak{b}$  of  $\mathfrak{g}$ . This result was extended by Lepowsky to give resolutions of  $F$  in terms of sums of representations induced from finite dimensional representations of a parabolic subalgebra  $\mathfrak{p}$  of  $\mathfrak{g}$ .

We will discuss what can be said if the finite dimensional representation  $F$  is replaced by an irreducible highest weight representation  $L$  of  $\mathfrak{g}$ . We will also present some applications of resolutions of infinite dimensional highest weight representations to algebraic geometry. (Received October 04, 2004)